

**CLAIMS:**

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. In an internal combustion engine having an associated controller controlling operation of the engine, a fuel pump for delivering fuel to the engine at more than one fuel pressure comprising:
  - a fuel inlet and a fuel outlet;
  - a motor and a pump assembly for drawing fuel through the inlet into the fuel pump and delivering fuel to the outlet at a pressure higher than the pressure at the inlet; and,
  - means responsive to an input from the controller to control the outlet fuel pressure.
2. The fuel pump of claim 1 further including an outlet assembly within the fuel pump in which the means controlling the outlet fuel pressure is included.
3. The fuel pump of claim 1 in which the means controlling the outlet fuel pressure controls operation of the motor as a function of a desired outlet fuel pressure.
4. The fuel pump of claim 2 in which the means controlling the outlet fuel pressure includes a pressure sensor sensing the pressure of the fuel at the fuel pump's outlet or other desired location within a fuel system of which the fuel pump is a component.
5. The fuel pump of claim 4 in which the means controlling the outlet fuel pressure further includes a processor responsive to the input from the controller and an input from the pressure sensor to control motor speed, the fuel pressure at the outlet of the fuel pump being a function of the speed of the motor.

6. The fuel pump of claim 5 in which the processor is further responsive to the input from the controller to control the duration which the motor runs during a predetermined time interval, the amount of fuel pumped by the fuel pump being a function of the duration.

7. The fuel pump of claim 5 in which the input from the controller is a binary signal whose value indicates to the processor at which of at least two outlet pressure levels the fuel pump is to supply fuel.

8. The fuel pump of claim 5 in which the input from the controller is an analog signal having a predetermined signal characteristic which indicates to the processor at which of the outlet pressure levels the fuel pump is to supply fuel.

9. The fuel pump of claim 2 in which the means controlling the outlet fuel pressure comprises a processor mounted on a printed circuit board installed in the outlet assembly.

10. The fuel pump of claim 9 further including a pressure sensor mounted within the outlet assembly and sensing the pressure of the fuel at the fuel pump's outlet.

11. A fuel pump for delivering fuel to an internal combustion engine at more than one fuel pressure, the engine having an associated controller controlling operation thereof, comprising:

a fuel inlet and a fuel outlet;  
a motor and a pump assembly for drawing fuel through the inlet into the fuel pump and delivering fuel to the outlet at a pressure higher than the pressure at the inlet;  
a processor responsive to an input from the controller to control the outlet fuel pressure; and,

a pressure sensor sensing the pressure of fuel discharged from the pump, the pressure sensor providing an input to the processor for the processor to determine if the outlet fuel pressure is a desired fuel pressure.

12. The fuel pump of claim 11 further including an outlet assembly within the fuel pump in which the processor and pressure sensor are installed.

13. The fuel pump of claim 11 in which the processor is responsive to the inputs from the controller and pressure sensor to control motor speed, the fuel pressure at the outlet of the fuel pump being a function of the speed of the motor.

14. The fuel pump of claim 13 in which the processor is further responsive to the input from the controller to control the duration which the motor runs during a predetermined time interval, the amount of fuel pumped by the fuel pump being a function of the duration.

15. The fuel pump of claim 13 in which the input from the controller is a binary signal whose value indicates to the processor at which of two outlet pressure levels the fuel pump is to supply fuel.

16. The fuel pump of claim 13 in which the input from the controller is an analog signal having a predetermined signal characteristic which indicates to the processor at which of two outlet pressure levels the fuel pump is to supply fuel.

17. A fuel pump for delivering fuel to an internal combustion engine at more than one fuel pressure, the engine having an associated controller controlling operation thereof, comprising:

a fuel inlet and a fuel outlet;

a motor and a pump assembly for drawing fuel through the inlet into the fuel pump and delivering fuel to the outlet at a pressure higher than the pressure at the inlet; and,

a processor responsive to an input from the controller to control the outlet fuel pressure to one of a plurality of separate, discrete fuel pressure levels.

18. The fuel pump of claim 17 further including a pressure sensor sensing the pressure of fuel discharged from the pump, the pressure sensor providing an input to the processor for the processor to determine if the fuel pressure is a desired fuel pressure.

19. The fuel pump of claim 18 in which the processor and fuel pressure sensor are both mounted on the fuel pump.

20. The fuel pump of claim 17 in which the input from the controller is a binary signal whose value indicates to the processor at which of a plurality of outlet pressure levels the fuel pump is to supply fuel.

21. The fuel pump of claim 17 in which the input from the controller is an analog signal having a predetermined signal characteristic which indicates to the processor at which of two outlet pressure levels the fuel pump is to supply fuel.

22. The fuel pump of claim 17 in which the processor is further responsive to the input from the controller to control the duration which the motor runs during a predetermined time interval, the amount of fuel pumped by the fuel pump being a function of the duration.